

REMARKS

Claims 1-2, 4, 6-7, 9-11, 16-17, 19-20, and 26-27 are rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt et al. (U.S. Patent 6,396,387) and further in view of Sasaki et al. Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt et al. (U.S. Patent 6,396,387) and further in view of Cooper (U.S. Patent 5,616,266). Claims 8 and 28 are rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt and further in view of Sasaki et al. Claims 12-15 and 22-23 are rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt, Sasaki and Sano (U.S. Patent 5,130,281). Claims 18 and 25 are rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt, Sasaki and Brown (U.S. Patent 4,721,632). Claims 3, 21, and 24 are rejected under 35 USC 103(a) as being unpatentable over Auding in view of Hunt, Sasaki and Dinter (U.S. Patent 6,404,130).

Independent claim 1 has been amended to recite that the thin film electrical heating element has an "electrically conductive layer substantially comprising a metal oxide doped with at least one rare earth element." Nowhere do the cited prior art references teach or suggest this feature. The Examiner suggests that column 24, lines 25-40 of Hunt shows a heating element with a metal oxide layer consisting of cerium. In fact, the Hunt specification is wholly concerned with the production of thin layer resistors for printed circuits which are fabricated utilizing combustion chemical vapor deposition techniques, and fails to teach or suggest the suitability of such resistors as heating

elements. Moreover, the "resistive material" described in column 24, lines 25-40 of Hunt is a mixture of a conductive metal co-deposited with a **minor amount** of dielectric material (which preferably is realized by a metal oxide such as a rare earth metal oxide). Thus, Hunt teaches that the rare earth metal oxide makes up a minor amount of the resulting resistive material. In contrast, the heating element of amended claim 1 recites "an electrically conductive layer **substantially comprising a metal oxide** doped with at least one rare earth element." (emphasis added) Such features advantageously provide for stability and power density suitable for thin film heating applications. Because of the significant differences between the features of claim 1 and the cited prior art, Applicant respectfully requests that claim 1 is patentable over the cited prior art.

Applicant respectfully submits that dependent claims 2-18 are patentable over the cited prior art for those reasons advanced above with respect to claim 1 from which they respectfully depend, and for reciting additional features that are neither taught nor suggested by the cited prior art references. For example, claim 15 is directed to equal concentrations of approximately 2.5 mol % of cerium and lanthanum in the organometallic base solution from which the electrically conductive layer is formed. Nowhere does the cited prior art references teach or suggest these features.

With respect to independent claim 19, it is directed to a method of forming the thin film heating element wherein an electrically conductive layer is deposited onto an electrically insulating substrate by "pyrolysis of an organometallic base solution containing at least one rare earth element." Nowhere do the cited prior art references

teach or suggest these features. The Examiner points to Auding et al as teaching this feature. However, the pyrolysis of Auding et al. has nothing to do with "an organometallic base solution containing at least one rare earth element." Because of the significant differences between the features of claim 19 and the cited prior art, Applicant respectfully requests that claim 19 is patentable over the cited prior art.

Applicant respectfully submits that dependent claims 20-29 are patentable over the cited prior art for those reasons advanced above with respect to claim 19 from which they respectfully depend, and for reciting additional features that are neither taught nor suggested by the cited prior art references. For example, claim 25 is directed to pyrolysis of an organometallic base solution comprising monobutyl tin trichloride. Nowhere do the cited prior art references teach or suggest this feature.

In light of all of the above, it is submitted that the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,



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